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Flying High and Laying Low in the Public and Private Sectors: A Comparison of Pay Differentials for Full-Time Male Employees in Britain*

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ABSTRACT JEL J3, J7

Using new linked employee-employer data for Britain in 2004, this paper shows that, on average, full-time male public sector employees earn 11.7 log wage points more than their private sector counterparts. Decomposition analysis reveals that the majority of this pay premium is associated with public sector employees having individual characteristics associated with higher pay and to their working in higher paid occupations. Further focussing analysis on the highly skilled and unskilled occupations in both sectors, reveals evidence of workplace segregation positively impacting on earnings in the private sector for the highly skilled, and in the public sector for the unskilled. Substantial earnings gaps between the highly skilled and unskilled are found, and the unexplained components in these gaps are very similar regardless of sector.

Key words: public sector earnings, male, fixed effects, earnings-gap, decompositions, segregation.

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1. Introduction

The public sector is a huge source of employment in the UK: employing a fifth of the total U.K. workforce. The corresponding wage bill contributes to nearly 50% of government spending in 2007. The public sector pay bill is, however, far from stable over time. Trinder (1997) argues that there are large oscillations in the public sector pay bill and that the movements in private/public wage relativities are pro-cyclical in Britain. During the 1980s and 1990s changes in the occupational composition across sectors led to a decline in the public sector pay gap, especially so for men[1]. Once they allow for changes in the age and qualifications of the workforces over time, Disney and Gosling (1998; page 354) report a public sector pay gap for men of only 1% in the 1990s.

Elliot et al. (1999) investigate public/private sector wages in the five largest EU states and Sweden. They also conclude that it is vital to allow fully for different returns to occupation, however, they note that a major difficulty is in identifying occupations where both private and public sector employees are present in large numbers. Studies which divide the sample (in some way) between high and low salaried employees could expect to find a positive pay premium for low earners in the public sector, especially if males and females are considered together and if occupations are not fully allowed for. Luciflora and Meurs (2006) compare the public sector pay gap across, Britain, France and Italy. They also conclude that the pay gap is highest for low salary earners in the public sector and argue that differences in unobserved characteristics may be more important for these employees[2]. It is clearly important to be able to control for the characteristics of potentially very diverse labour forces in the two sectors.

Another major difference between the public and private sectors in Britain is the nature of the wage setting process. For example, there are considerable disparities in the extent of trade union representation in wage negotiations, the presence of wage setting boards in the public sector, and the presence of incentive pay schemes across the sectors. Makepeace and Marcenaro-Gutierrez (2006; page 6) argue that, with the exception of the armed forces, all the public sector occupations covered by pay review bodies saw a growth in their real earnings between 1999 and 2003.

Burgess and Metcalfe (1999) use the 1990 Workplace Industrial Relations Survey (WIRS90) to explore incentive schemes across public and private sector workplaces. Controlling for occupational type they find that incentive schemes are much rarer for higher skilled occupations in the public sector. Burgess and Ratto (2003) survey international evidence to further explore the

[1] Bender and Elliot (1999) also investigate pay convergence across the public and private sectors in Britain. Their main conclusion (using the usual decomposition analysis) is of divergence between returns to sector-specific occupational characteristics.

[2] Yu et al (2005) similarly find salaries are greater for well paid employees in the private sector and vice versa for the lowly paid in the public sector in Britain. They only include years of schooling, work experience and an indicator variable for public sector employment as explanatory variables.

impact of explicit incentives (and especially Performance Review Pay, PRP) in the public sector. They conclude that these practices are typically under utilised in the public sector. A strength of these studies is the recognition that workplace characteristics are not uniform across the sectors. To be able to fully consider the association between payment schemes such as these and the resultant public sector pay gap for individual employees, it is necessary to use linked employee and workplace data.

The data used in this paper are drawn from the British Workplace Employee Relations Survey 2004 (WERS04)[3] which is a nationally representative survey of both workplaces and their employees. The linked nature of the WERS04 data allows us to control far more extensively for both individual employee characteristics and the workplace than has been possible in previous earnings studies. A further attractive feature of the WERS04 data, of particular relevance to our study, is the extensive information it provides on both public and private sector workplaces (Kersley et al, 2006, page 5).

Most studies that concentrate on the public-private wage differential issue rely on the human capital model as the theoretical basis for the study of earnings (Becker 1975). This approach is also used as the starting point in this paper. At the employee level, it is assumed that wages increase with (marginal) productivity which in turn increases with measures of accumulated skills such as education, work experience, and training. The Human Capital approach is necessarily partial. By using linked workplace-worker data, we are able to explore the additional role the workplace may have in the wage determination process and on the public-private wage differential in Britain. In doing so, we will investigate the relative earnings of (1) male public sector and private sector full-time male employees, and (2) male full-time employees[4] in the highly skilled (managerial, professional and technical) and unskilled occupations in each of these sectors. A further contribution of our study over the existing literature is to also consider the potential impact of the workplace on the public-private sector pay gap.

[3]Department of Trade and Industry (2006). Workplace Employee Relations Survey: Cross-Section, 2004 (computer file). 5th ed. Colchester: The Data Archive (distributor). SN: 5294.

[4] Nickel and Quintini (2002), using evidence from age 10 and 11 test scores from the National Child Development Survey (NCDS) and the NES, argue that a decline in public relative to private sector pay adversely affects the quality of males in the public sector, but not females. Their paper emphasises the need to control fully for the individual characteristics of public sector employees, but also raises the question of why the different genders may respond differently to the characteristics of public sector workplaces. This paper will concentrate on males working full-time.

2. The Data

The British Workplace Employee Relations Survey 2004 (WERS04) is a nationally representative survey of workplaces with 5 or more employees[5]. (A workplace comprises the activities of a single employer at a single set of premises.) Face-to-face interviews for WERS2004 were conducted with a senior manager (with day-to-day responsibility for employee relations). At those workplaces responding to the manager survey, a questionnaire was presented to 25 randomly selected employees (in workplaces with more than 5 employees) or to all the employees (in workplaces with fewer than 26 employees). The entire surveying process resulted in 2,295 completed workplace surveys, with 22,451 completed employee questionnaires from 1,733 of these workplaces. Concentrating on male full-time employees leaves us data for 6,695 employees (1,489 from the public sector and 5,206 from the private).

WERS04 is a stratified random sample, and larger workplaces and some industries are over-represented. Thus, all of the empirical results that follow use workplace and employee sampling weights where possible.

WERS04 and its predecessors have been used to analyze diverse research questions (Millward et al. 2004), but we are not aware of any research using these data to explicitly examine the earnings gap between highly skilled and unskilled, public sector and private sector, male full-time employees in Britain. Retaining only those individuals who have complete information for the variables used in the analyses below leaves us 6,695 full-time male employees (1,489 from the public sector and 5,206 from the private sector).

3. Measuring the earnings gap

Full definitions of the variables to be used in the study are presented in Appendix Table A1. Brief sample based summary statistics are presented in Table 1 for the full data sample (columns one and two), the public sector (columns three and four), and the private sector employees (columns five and six). We concentrate on male full-time employees only. [6] A full-time employee is defined to be working 37 or more hours per week, which is a standard full-time working week in the public sector and a reasonable assumption for the more variable definition of full-time in the private sector (Manning and Petrongolo, 2006).

In the latter sections of this paper, we aggregate the three upper occupational categories by skill, namely managerial, professional and technical, into one highly skilled (high flying) category which we call “Highly Skilled”. For contrast, we also focus on the occupational group of

[5] The industries excluded from the survey were agriculture, hunting and forestry; fishing; mining and quarrying; private households with employed persons; and extra-territorial organisations and bodies.

[6] For a study of gender earnings gaps across the public and private sectors in Britain, see Chatterji et al, 2007.

"Unskilled" workers. Table 1 also presents summary statistics for the Highly Skilled (columns seven and eight) and for the Unskilled employees (columns nine and ten), respectively. The public sector (as defined by the suppliers of the data set[7]) employs 22 per cent of full-time male employees in Britain (Table 1): 28 per cent of the Highly Skilled group and 26 per cent of the Unskilled. In other words, there is some over representation, in the public sector, at both ends of the occupational spectrum.

The variable of major interest is the hourly wage variable W for employee i in workplace j. Hourly earnings are calculated for each employee by dividing their gross (before tax and other deductions) weekly wages by the hours they usually work each week (including any overtime and extra hours). The data do not give the actual value of gross weekly wages but rather the interval to which the wage belongs for each sampled worker, there are 14 bands. In our regression analysis, the mid-point of the interval is used as the measure of weekly wages.[8] Usual hours worked is a continuous measure. The subsequent hourly wage measure, W_{ij}, is the ratio of weekly wages to usual hours and is therefore continuous.

We find that public sector full-time males earn some 8.9% more than do their private sector employees (Table 1, row one) and that there is considerably more variance in public than in private sector pay. Comparing log wages, as is more common in the literature, public sector employees earn 11.7 log wage points (lwp or 11.7 log per cent) more than private sector employees. This is the raw earnings gap that will be explored further.

3.1 The determinants of earnings

As discussed above, the majority of authors have adopted the human capital model as the theoretical basis for the earnings function in both the private and the public sector (an extensive recent survey is provided in Chiswick, 2003). This approach is also used in this paper. At the employee level, it is assumed that wages increase with measures of accumulated skills such as education, work experience, and training.

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[7] A public sector workplace is one where the best description of the formal status of the establishment (or the organisation of which it is a part) is that it is a: government owned limited company; nationalised industry; public service agency; other non-trading public corporation; quasi autonomous national government organisation (QUANGO); or local/central government (including the National Health Service and Local Education Authorities).
A private sector workplace is one where the best description of the formal status of the establishment (or the organisation of which it is a part) is that it is a: public limited company (PLC); private limited company; company limited by guarantee; partnership (including limited liability partnership/ self-proprietorship.); trust/charity; body established by Royal Charter; or co-operative/mutual/friendly society.

[8] In unreported results, we address the possibility that this banding may affect our results (Stewart, 1983). Using interval regression techniques, we find, however, no significant difference from the more general OLS regression results reported in the text.

WERS04 provides information as to the highest level of education the individual has received across a range of educational categories. Just over a quarter of full-time male employees have a degree or postgraduate qualification whilst nearly 60 per cent have no post-age 16 qualifications (Table 1). Measures of work experience are usually assumed to be positively related to wages via the ability to become more productive over the time period the employee has spent working. Typically, cross-sectional studies do not have data on the history of actual lifetime work experience across firms for individuals. Instead proxies are provided, the most common of which is potential experience: the age of the individual minus years spent in education. This may lead to an underestimate of the relationship between work experience and earnings if the individual was not employed consistently throughout their working life (such as the long-term unemployed or mothers who have taken time out of the labour force to care for their children[9]). WERS04 also does not have information on actual experience over working life; potential experience (age minus education and infant years) is used instead and the results need to be interpreted with this caveat in mind. The length of the time the employee spent in employer-provided training in the previous year (sometimes thought of as Continuous Professional Development, CPD) is also included in the dataset; this measure of training is expected to be positively related to wages (Hashimoto, 1981; Almeida-Santos and Mumford, 2005).

The public sector sample displays higher levels for all of these categories (35.5% have a degree or postgraduate qualification compared to 24.7% of the private sector employees; they have on average 2.3 more years of experience and 1.2 days more training in the previous year; they are also almost 9% more likely to have a vocational qualification, see Table 1). Public sector employees are much more likely to be in the professional, technical, clerical and personal services occupations whilst the private sector has more managers, craftsmen, salesmen, and operative-assembly workers.

The earnings function is augmented with the inclusion of further categories of explanatory variables capturing individual employee characteristics such as demographic variables (which may constrain an individual's choice of jobs such as the presence of dependent children, marital status, race and physical disability); job characteristics (being on a fixed term contract, current job tenure, and union membership); and workplace-specific characteristics (we allow the workplace to have a fixed-effect impact on the productivity of individual employees and thus on the earnings function).

Considering the demographic variables in more detail, just over forty per cent of British full-time male employees have at least one dependent child (see Table 1), this is more common amongst the Highly Skilled (45 per cent) than the Unskilled (38 per cent). Close to two thirds of employees

[9] By concentrating on full-time male employees this particular possible source of bias may not be as important to the results presented here.

are partnered or married (again more so for the Highly Skilled, 76 per cent, than the Unskilled, 62 per cent). There are more employees who consider themselves to be of a non-white ethnic background working in the private sector (6 per cent) than the public sector employees (4 per cent); and amongst the Unskilled (8 per cent) than the Highly Skilled (4 per cent). Finally, a substantial proportion of the workforce has an ongoing physical disability (12 per cent of all full-time men); more so in the public sector and amongst the Unskilled.

Considering the individual job characteristics, some 2 per cent of employees are working on fixed term contracts, reflecting a more insecure employment future. These employment contracts are more common in the public sector (3 per cent) than in the private sector (2 per cent) but their incidence is not significantly different across the skill groups. Current job tenure (uncompleted spells) is on average 5.5 years (5.6 for the Highly Skilled and 5.1 for the Unskilled). Tenure is also higher in the public sector (6.3 per cent) than in the private sector (5.3 per cent). Current job tenure is expected to be positively related to wages primarily because it usually reflects a successful match between employee and employer (Mumford and Smith, 2004) and a greater opportunity to accumulate job related skills.

Union membership has declined dramatically in Britain since the 1970s. Nevertheless, in 2004 it was still substantial at 32 per cent of full-time male employees representing a potentially major source of bargaining. Union membership rates are very much higher in the public sector (74 per cent) than in the private sector (23 per cent). They are also higher for the Unskilled (36 per cent) than the Highly Skilled (27 per cent). The union may provide a voice mechanism for the individual thereby leading to less quits, longer tenure and higher wages (Freeman and Medoff, 1984, Chatterji 2007). Unions may also, however, provide a range of other services to their members, which could increase relative job satisfaction and reduce the wage. On balance, a positive relationship between union membership status and the wage is expected.

Occupational choice, at an individual level, is often treated in much the same way as educational outcome since they both reflect a range of variables, especially individual ability and opportunity (Filer, 1986). Occupational choice may also be constrained. In general, those occupations typically associated with higher skill levels are more likely to occur in the public sector (professional, technical). With the exception of the Highly Skilled managers, who are more likely to be employed in the private sector. Analogously, the more manual skilled occupations (crafts, personal services, sales, operative and assembly workers) are more likely to be employed in the private sector (Table 1). The proportion of the male full-time workforce that is classified as Unskilled is 13 log percent, this is slightly higher in the public sector (at 14 per cent) than in the private sector (13 per cent), but not significantly so. As discussed above, in the second stage of the

analysis below, we combine managerial, professional and technical employees into a single group which we call the Highly Skilled. We compare this group to those employees who are Unskilled.

4. Estimating the earnings function

We start by establishing a base line regression which uses individual worker characteristics only. For clarity we focus on earnings outcomes for full-time males, not least because the impact of gender may well be conflated with the issue of workplace-specific effects. Using semi-logarithmic wage equations, we estimate:

$$W_{ij} = \alpha + \beta_1 X(1)_{ij} + ... + \beta_k X(k)_{ij} + \varepsilon_{ij} \quad (1)$$

where W_{ii} is the natural log of the wage for individual i in workplace j; α is an intercept term; X_{ij} is a vector of k regressors capturing the individual characteristics expected to have an impact on wages; and ε_{ij} is a residual term. We call this our baseline model and estimate it using ordinary least.

Having established the baseline, we then allow for workplace-specific fixed effects by re-estimating (1) using a fixed effects model:

$$W_{ij} = \alpha + \partial_j + \beta_1 X(1)_{ij} + ... + \beta_k X(k)_{ij} + \varepsilon_{ij} \quad (2)$$

where j again represents the workplace and δ_j the workplace-specific effect[10].

We begin with an analysis of male public sector and private sector full-time male employees. This is followed with an investigation of the relative earnings of male full-time employees in the highly skilled (managerial, professional and technical) and unskilled occupations in each of these sectors (see section 7 below). We estimate models separately for each of the groups of employees, rather than pooling models across employees (see Bayard et al, 2003, for example). We take the view that models for public sector and private sector employees may be more likely to produce different parameters than those for all employees. This is borne out in the results shown below.

Robustness of the estimation results is of clear concern. The nature of the earnings data in WERS04 presents an issue for the construction of the earnings series employed in this paper. As noted above, the earnings data in WERS04 is not measured in a continuous manner but is instead banded. As Stewart (1983) discusses, it is possible, in principle, that this banding may affect the properties of the ordinary least squares estimates of the earnings function that we estimate. In unreported results (available from the authors) we provide a full set of estimates employing the appropriate (and suitably weighted) interval regression method. Comparison of the estimates

[10] The workplace-specific effect δ_j also captures unobservable individual effects common to all employees in a workplace. It is not possible to identify the remaining idiosyncratic effects and we relegate them to the residual. This will have no consequence for the estimate of δ_j if the remaining individual effects are uncorrelated with these included workplace-specific effects.

confirms that interval estimates are very similar to the ordinary least squares estimates. We therefore concentrate our analysis on the ordinary least squares estimates[11].

5. Estimation Results

Table 2 reports the baseline estimates of our earnings function in columns 2 and 3 and the estimates including workplace specific fixed effects in columns 4 and 5. The test of the explanatory power of the regressors is clearly significant for all the regressions. Overall, the parameter estimates are generally well defined and have the expected sign.

Beginning with the baseline regressions, the returns from higher qualifications are positive for all employees and they are higher in the private sector than in the public sector. It should be remembered that these statements are relative in nature. For example, the returns to education in each sector are measured relative to the omitted education category; in this case, "education none or other" (which we treat as our base). The average log hourly pay for this education level is 1.99 lwp in the private sector and 2.08 lwp in the public. They constitute 27.7 per cent of the private sector workforce and 21.7 per cent of the public. As the comparison group is lower paid in the private sector we might expect to see larger rates of return for higher education levels in this sector. The returns from extra days of training and vocational qualifications are also positive for all employees but are only significantly related to wage increase in the private sector.

The returns from potential work experience are a little more complex to interpret as there is evidence that the relationship is not a simple linear one. The returns are increasing (as indicated by the positive coefficients in row 1 of Table 2) but at a decreasing rate (the negative coefficients for potential experience squared in row 2 of Table 2). Thus, the total returns associated with potential work experience are not constant for difference lengths of experience. Returns in the private sector are higher for all but the very longest periods of work experience. (At experience levels less than 44 years, the total returns from experience are higher in the private sector and at experience levels more than 44 years they are higher in the public sector.) Total returns from experience in the private sector are increasing up to 33 years of experience, after which the marginal returns associated with an extra year of experience becomes negative. The relationship between experience and returns in the public sector in relatively smoother; the marginal returns associated with an extra year of experience only becomes negative at 42 years of experience. The difference in the returns from experience across

[11] A further issue concerns unobservable heterogeneity in true worker quality. Nickel and Quintini (2002), using evidence from age 10 and 11 test scores from the National Child Development Survey (NCDS) and the New Earnings Survey (NES), argue that a decline in public sector relative to private sector pay adversely affects the quality of males in the public sector, but not females. Their paper emphasises the need to control fully for the individual characteristics of public sector employees, but also raises the question of why the different genders may respond differently to the characteristics of public sector workplaces.

the sectors is highest at 22 years of experience, the gap then closes until the curves cross at 44 years. The average experience in these two sectors is 26 years in the public sector and 24 in the private (see Table 1): where the gap in returns is close to the widest.

The returns from being in the more skilled occupations (managerial, professional and technical) rather than clerical are all higher in the public sector. The average log hourly pay for clerks is 2.17 lwp in the public sector and 2.26 lwp in the private and so we might expect to see higher returns for better paid occupations in the public sector. In the private sector there is a clear break in the return to occupation with craft, personal services, salesmen, operative and assembly workers and the unskilled earning less than clerks. The (almost) monotonic decline in the rates of return to the occupational categories used suggests a clear occupational hierarchy. In analysis below, we exploit this hierarchy by looking at both extremes separately.

There is no significant difference in the returns to being married across the two sectors, with all full-time men enjoying higher wages if they are married. Public sector men earn significantly more if they have a child, however. There are also two more significant wages associations in the private sector that are not apparent in the public: members of ethnic minorities earn less and trade union members earn more.

Employees from ethnic minorities earn more than others in the public sector (although with low significance levels) and substantially less than others in the private sector. Being a trade union member is not associated with significantly higher earnings in the public sector (despite the high membership rates recorded in this sector) but is associated with 5.5% higher earnings in the private sector.

The introduction of workplace specific fixed effects (columns 5 to 8 of Table 2), though statistically significant, has little impact on the public sector results pertaining to the relationship between earnings and the augmented human capital regressors. There is some reduction in the returns from low levels of education but the return for higher qualifications (degree and postgraduate) show relatively little change. The relationship with the demographic characteristics of the workers (having a child, being married or being disabled) and the wage also show no significant change. There is some slight decline in the wage returns for the highest occupations in the public sector but again not significantly so. These results suggest that there is very little workplace segregation amongst public servants or, alternatively, that the introduction of workplace specific characteristics does not have an impact on the relationship between the individual characteristics of the workers and their wages in the public sector in aggregate. There is one major exception; the wage premium enjoyed by those considering themselves to be ethnic is no longer significant, suggesting that these employees are concentrated in high paying workplaces.

By contrast, introducing workplace-specific fixed effects into the private sector earnings function is associated with a removal of the positive relationship between training and wages; the positive returns from higher education levels are reduced; and the union wage gap becomes significantly negative. The earnings penalty associated with being unskilled has also fallen substantially. These results suggest that there is segregation of high paid workers into high paying workplaces, segregation of low paid workers into low paying workplaces, in the private sector.

The change in the impact of union membership is particularly striking. Being a trade union member is not associated with significantly higher earnings in the public sector in our results (despite the high membership rates recorded in this sector) with or without workplace specific effects. In the private sector, without the inclusion of workplace specific effect trade union membership status is associated with 5.5% higher earnings in the private sector. Once workplace specific fixed effects have been fully allowed for, trade union membership is actually associated with 4.7% lower earnings in the private sector. This would suggest that the wage premium associated with trade unionism in the private sector is linked to being in a 'unionised' workplace rather than the individual employee themself being a member.

Another noteworthy finding is that the returns to the lower and higher levels of education (especially for postgraduates) are smaller in the private sector than the in public sector once workplace fixed effects are allowed for, as are the returns to a vocational qualification. We will return to explore these findings more fully below where the role of occupation is addressed further.

6. Decomposing the earnings gaps across the sectors.

The estimates we have for the public and private sector employees can be used to examine the contribution of individual and other characteristics to making up the explained and unexplained portions of the earnings gap. The approach we adopt to apportion the gap in the mean earnings of any two groups is that discussed in Oaxaca and Ransom (1994). In general, the decomposition of the mean earnings gap between groups of employees *a* and *b* is calculated from estimates of equation (1) as:

$$\overline{W}_a - \overline{W}_b = (\overline{X}_a - \overline{X}_b)\hat{\beta}_a + \overline{X}_b(\hat{\beta}_a - \hat{\beta}_b) + (\hat{\alpha}_a - \hat{\alpha}_b) \qquad (3)$$

where, in terms of equation (1): $(\overline{W}_a = \overline{W}_{ij})$ and $(\overline{X}_a = \overline{X}_{ij})$ for the subset of *i* included in group *a*, and $(\overline{W}b = \overline{W}_{ij})$ and $(\overline{X}_b = \overline{X}_{ij})$ for the subset of *i* included in group *b*. In this calculation $(\overline{X}_a - \overline{X}_b)\hat{\beta}_a$ captures the impact of the difference in the value of the regressors weighted by the

parameters from the model for group *a*, and $\overline{X}_b(\hat{\beta}_a - \hat{\beta}_b) + (\hat{\alpha}_a - \hat{\alpha}_b)$ is the remaining unexplained gap. In the discussion below, we split the explained component into that part due to the individual characteristics and that due to the occupational dummy variables.

The decompositions for all full-time male employees across the public and private sectors are presented in Table 3. As discussed above, the earnings gap between public and private sector male full-time employees is 11.73 log wage points, lwp (or log per cent). Using the decomposition in equation (3), this earnings gap can be decomposed into the component explained by differences in the mean values of their individual characteristics of 8.01 log-percentage points (lwp); an occupational component of 2.42 lwp; and an unexplained component of 1.29 lwp; the three components summing to the earnings gap of 11.73 lwp. Differences in characteristics can be further divided into the component related to potential experience (2.28 lwp); differences in formal education (4.09 lwp); and other (1.64 lwp).

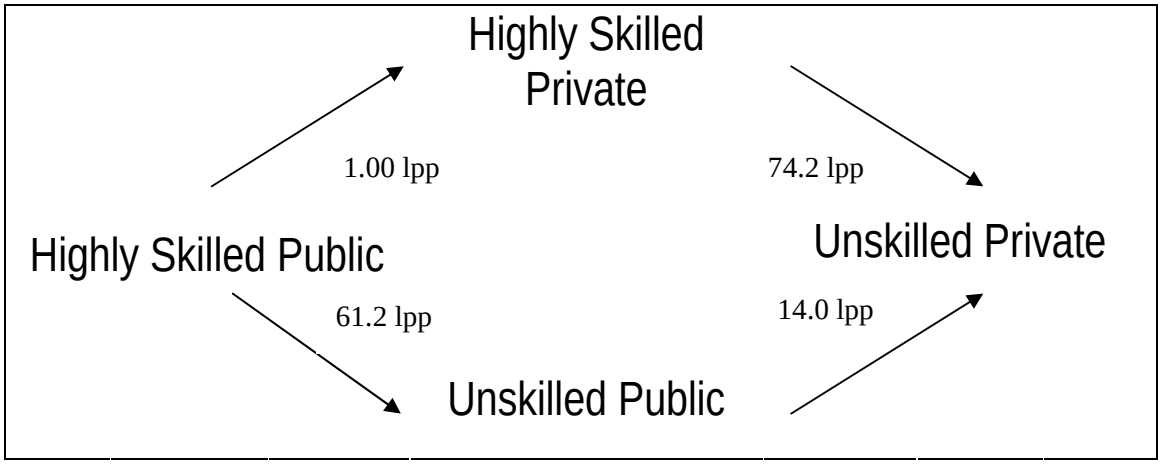
It would seem that the higher hourly earnings public sector full-time males earn over private sector males primarily reflect the relatively more productive characteristics the former group possesses (especially their formal education and potential work experience) and the higher paid occupations they are more likely to be in. There is a relatively small, but notable, unexplained component in their earnings gap of 1.29 lwp (or 11 per cent of the total gap).

7. Focussing on the Highly Skilled and the Unskilled across the sectors.

The results above reveal that a substantial proportion of the earnings gap between the public and private sectors is associated with occupation, confirming the results found by Bender and Elliot (1999). In this second part of the paper, we further explore the implications of this finding by concentrating analysis on the extreme ends of the occupational categories; the higher skilled and lower skilled occupations in the two sectors. As discussed above, we aggregate the three upper occupational categories, namely managerial, professional and technical, into one highly skilled category which we call “Highly Skilled”. For contrast, we also focus on the occupational group of “Unskilled” workers.

Table 1 (discussed in section 3 above) presents summary statistics for the full data sample, public and private sector, Highly Skilled and Unskilled employees in aggregate, respectively. Summary statistics for the sub-samples of primary interest to this second part of the report (public sector Highly Skilled, private sector Highly Skilled, public sector Unskilled, and private sector Unskilled full-time male employees) are presented in Table 4. This implies four earnings gaps of primary concern; these are presented in Figure 1 (measured in log percentage points, lpp, or log wage points):

Figure 1. Earnings gaps: Skill and sector.



Within skill levels but across sectors, the public sector to private sector gap for the Highly Skilled is only 1 log per cent; this is considerably smaller than the public sector to private sector gap for the Unskilled which is 14 log per cent. Within sectors but across skill levels, the earnings gaps are considerable: the Highly Skilled public sector to Unskilled public sector gap is 61.2 log per cent, whilst the Highly Skilled private sector to Unskilled private sector gap is 74.2 log per cent.[12]

7.1 Within sector differences in characteristics across the skill groups of employees.

Considering sector differences within skill group (Table 4), the more general sector based relationships discussed above (in section 3) are still typically true. For example, public sector employees have more potential experience ceteris paribus, as do the Highly Skilled. They are more likely to have a higher education levels, recent training, vocational qualifications, a dependent child, be married, and so on. In the case of education, the category ce2ae – (two or more A levels at A-E standard) appears to be of particular importance. For the Highly Skilled Group, the proportion of workers who have this or higher education level is 61% in the public sector and 56% in the private sector. For those in Unskilled Group, the corresponding numbers are 14% and 13% respectively. Looking across the public-private divide, these data suggest a greater uniformity amongst the Unskilled Group than in the Highly Skilled Group in terms of educational achievements.

[12] Two further bilateral gaps, not included in Figure 2, are those between Highly Skilled public sector and Unskilled private sector employees (which is 75.1 log per cent); and that between the Highly Skilled private sector and the Unskilled public sector employees (which is 60.5 log per cent). See row 1 of Table 4.

Being disabled is more common in the public sector and amongst the Unskilled. Union membership can now also be seen to be consistently higher for public sector and for Unskilled employees. Only 14 per cent of Highly Skilled employees in the private sector have current union membership. In contrast, 82 per cent of Unskilled employees in the public sector are union members.

Amongst those mean characteristics that reveal differences within skill level and sector is the ethnic mix, on average 4 per cent of all public sector employees consider themselves to be from an ethnic background: 5 per cent of the Highly Skilled and 3 per cent of the Unskilled. In the private sector 6 per cent of all employees report that they are from an ethnic background: 4 per cent of the Highly Skilled and a substantial 9.5 per cent of the Unskilled. Similarly, Highly Skilled employees in the public sector are twice as likely to be employed on a fixed term contract than are Highly Skilled employees in the private sector. This pattern is reversed for the Unskilled, where these employment contracts are more than three more likely to occur in the private sector. Analogously, in the public sector the Unskilled have the longest average current job tenure, in the private sector it is the Highly Skilled.

7.2 Estimation across skills and sectors

We repeat the estimation procedure discussed in section 5 above, however, the focus is now on the relative earnings of male full-time employees in the Highly skilled (managerial, professional and technical) and Unskilled occupations in each of these sectors. In particular, semi-logarithmic wage equations (equation 1 above) are estimated for public sector Highly Skilled, private sector Highly Skilled, public sector Unskilled, and private sector Unskilled male full-time employees. Semi-logarithmic wage equations are also estimated including workplace-specific fixed effects (equation 2 above) for each of the four groups of employees. We again estimate models separately for each of the groups of employees, rather than pooling models across employees. [13]

7.3 Results for the Highly Skilled and the Unskilled across the sectors.

The estimates of the earnings function for each of the four groups of employees are presented in Tables 5 and 6. These are the OLS (baseline) estimates for public sector Highly Skilled, private sector Highly Skilled, public sector Unskilled, and private sector Unskilled male full-time employees. Results for the estimates of the semi-logarithmic wage equations (equation 1 above) are presented in Table 5. Results for the estimates including for workplace-specific fixed effects (equation 2 above) are provided in Table 6.

[13] Interval regression estimates again confirm that the OLS estimates are not significantly affected by the banding of the earnings data.

Reading across the columns in Table 5, stronger relationships between the explanatory variables included in the earnings functions can generally be seen to occur for the Highly Skilled. For example, the returns from education are greater for the Highly Skilled across sectors, more so in the private sector than in the public. In contrast, there is no significant evidence of the more educated Unskilled employees earning more in either sector; instead, it would appear that those Unskilled employees who are in the middle of the education distribution do best (given the characteristics included in this analysis).

There is no significant evidence of higher earnings being associated with recent training in the public sector, unlike in the private sector where a relatively small impact is found for both Highly Skilled and Unskilled employees. Vocational qualifications are also only significantly related to earnings in the private sector but only for Unskilled employees.

Differences do occur, however, across the skill groups and/or sectors, a good example of this is the relationship between potential work experience and earnings. As discussed above when considering sector differences, the returns from potential work experience are non-linear. The returns are increasing (as indicated by the positive coefficients in row 1 of Table 5) but at a decreasing rate (as indicated by the negative coefficients for potential experience squared in row 2 of Table 5); this is true for each skill group and sector. The returns to experience are consistently found to be the lower for Unskilled employees in the private sector (peaking at 31 years) [14]. In contrast, the returns from experience are always higher for the High Skill employees in the private sector (peaking at 36 years). Within these two extremes lay the returns profiles for the public sector.

The returns from experience for High Skill public sector employees also always sit above those of the Unskilled public sector employees; however, these profiles are much closer together and are much flatter than they are in the private sector. This latter is especially true for the High Skill employees. At the point of greatest difference, however, High Skill employees in the private sector have returns from work experience that are some 39% greater than their High Skill counterparts in the public sector. When they have 40 years of work experience this difference has dropped to 23% (and is 15% at 45 years). This result is of some policy importance given the concerns about experience based pay scales which are prevalent in the public sector. Our results suggest that notwithstanding the absence of formal experience based pay progression, private sector High Skill employees are even more greatly rewarded for experience than their public sector counterparts.

[14] As discussed above, we might expect the returns from experience to be biased downwards as the measure of work experience used here is likely to overestimate the time actually spent in employment over the working life (for example, by ignoring spells of unemployment). This may be more relevant for private sector and/or Unskilled employees.

Current job tenure is rewarded similarly for the Highly Skilled in both the public sector and private sectors. However, consistent with the findings for work experience, the return for current job tenure is much higher for the Unskilled, especially in the private sector.

Being on a fixed-term contract has a strong positive relationship with wages for Highly Skilled employees in the private sector, it has a strong negative relationship with wages for all of the remaining groups of employees (although this is only weakly significant for the Unskilled in the private sector). Current union membership is only related to higher earnings for the Unskilled in the private sector, where it has a comparatively strong impact.

Of the demographic characteristics, having a dependent child is only associated with higher earnings for Highly Skilled men in the public sector. In contrast, being married is linked to higher wages for all groups except the Unskilled employees in the private sector. In combination, the impact of having a dependent child and being married for a Highly Skilled employee in the public sector is similar to the impact associated with being married for a Highly Skilled employee in the private sector.

Dividing the analysis into differing skill levels leads to quite different results for ethnic background and disability. There is no longer a positive association with ethnic salaries in the public sector and a negative association in the private sector. Whilst there are no significant relationships revealed with ethnicity in Table 5, the direction of the relationships are not consistent within sector or across skill group. If there is a relationship, it may be that Highly Skilled ethnic employees earn more in the public sector and less in the private sector and vice versa for Unskilled ethnic employees. Similarly, results in Table 5 suggest that being disabled is significantly associated with lower wages for the Highly Skilled and, at very weak significance levels, may actually be associated with higher wages for the Unskilled in the public sector.

Including workplace-specific fixed effects in the analysis of the Highly Skilled group of employees again has differential impacts. In the private sector the estimated rates of return for higher education levels fall (especially at the degree and postgraduate levels, where they are now lower than in the public sector, see Table 6). The positive wage returns from training in the private sector also decline. These results are consistent with High Skilled employees tending to concentrate in high paying workplaces in the private sector. Analogously, the negative relationship between earnings and being on a fixed term contract or being disabled are no longer significant, suggesting that workers with these characteristics are concentrated in low paying workplaces. Finally, the negative relationship revealed between union membership and ethnicity and earnings both strengthen and become significant when workplace fixed effects are allowed for.

Considering the High Skill group of employees in the public sector, when workplace fixed effects are included in the analysis, similar changes are found as for the private sector but to a lesser extent.[15] Whilst there is some evidence of segregation, the public sector workplaces appear to be offering a more homogenous work environment for the Highly Skilled than is the private sector.

The relationship between being employed on a fixed term contract and earnings is very different between the two sectors. Our results suggest that those on fixed term contracts are concentrated in low paying workplaces in the private sector and high paying workplaces in the public sector. Once workplace characteristics are fully allowed for, however, there is no significant relationship between earnings and this type of employment contract for High Skill employees in either sector.

Finally, considering the relationship between trade union membership and earnings, this can now be seen to be significantly different across the sectors. Being a union member, given workplace characteristics, is associated with 8% more pay for the Highly Skilled in the public sector and l0% less pay for the Highly Skilled in the private sector.

Considering the Unskilled employees in the private sector, there is some evidence of a decline in the returns associated with higher education levels and longer tenure, indicative of some concentration of higher paid unskilled workers into higher paying workplaces. The extent of this segregation is considerably lower, however, than for their High Skill colleagues. In the public sector, there is no substantial evidence of workplace segregation amongst Unskilled employee: again suggesting more homogenous work environments across workplaces in the public sector.

The substantially higher earnings associated with being a trade union member for the Unskilled employees in the private sector (a premium of 13.5%, see Table 8) is no longer apparent in the fixed effects results (Table 6). Indeed, these results suggest that there is no relationship between trade union membership and earnings for Unskilled employees in either sector once workplace characteristics have been fully allowed for. [16]

7.4 Decomposing the earnings gaps across skill and sector

The decomposition results for the analysis for the of occupational skill groups across are presented in Figure 2. The central core of the figure lays out the four sub-samples of concern (public sector Highly Skilled, private sector Highly Skilled, public sector Unskilled and private sector Unskilled).

[15] Similarly, the negative relationship between earnings and being disabled is also no longer significant in the public sector, suggesting that workers with these characteristics are concentrated in low paying workplaces in this sector.

[16] Our results suggest that the relationship between earnings and trade union membership differs substantially according to the type of employee being considered. This is confirmed by other recent studies of earnings gaps based on analysis of the WERS04 data (for example, Chatterji et al (2007) explore earnings gaps between men and women who are working in the public and private sectors; Mumford and Smith (2007) consider male and female, full and part-time earnings gaps).

Each total bilateral earnings gap is presented next to an arrow indicating the direction of the comparison. The contribution of the differences in the individual characteristics is evaluated using the parameters from the model for the higher earnings group (*a* in equation (3)). The unexplained component results from differences in the parameters for the two groups evaluated at the mean vales of the individual characteristics for the lower wage group (*b* in equation (3)).

The earnings gap between Highly Skilled public sector and Highly Skilled private sector full-time male employees in Britain can now be see to be very small at 1 log wage points, lwp (or log per cent).[17] This suggests that Highly Skilled private sector workers earn a modest premium over their public sector counterparts when raw earnings gaps are considered. This earnings gap can be decomposed into the component explained by differences in the mean values of their measures of potential experience which make up a major component of 3.28 lwp; differences in the mean values of their formal education which make up 2.51 lwp; differences in the mean values of their other characteristics which make up a further 0.99 lwp; and an unexplained component of –5.50 lwp. (This unexplained gap in earnings is substantial, especially if it is considered relative to the original gap in their raw earnings.) The four components summing to the earnings gap of 1 lwp.

The earnings gap between public sector and private sector Highly Skilled employees is therefore due to the former having more productive characteristics (or at least characteristics that are more likely to be associated with higher pay) especially potential experience and education. The size and sign of the negative unexplained component suggests that Highly Skilled employees in the private sector are being relatively over-rewarded for their characteristics: given the distribution of characteristics across the sectors the observed earnings gap could be expected to be substantially larger than it is.

The (within skill but across sector earnings) gap for Unskilled employees in the public and private sectors is 13 lwp higher than the gap for Highly Skilled employees across the sectors, at 14 log per cent. Differences in potential experience explain 3.67 lwp (26%); formal education is 0.72 lwp (5%); differences in the mean values of their other characteristics are a further 2.04 lwp (15%); and the unexplained component is 7.19 lwp (51%). Unskilled employees in the public sector have substantially higher earnings (as compared to their private sector counterparts) than would be expected given their levels of those characteristics that are commonly included in an earnings function.

[17] Disney and Gosling (1998, using data from the General Household Survey and the British Household Panel Survey) also report a public sector pay gap for men of only 1% in the 1990s once they allow for changes in the age and qualifications of the workforces, Disney and Gosling (1998; page 354).

Similar analyses can be carried out for the other bilateral earnings gaps[18] presented in Figure 2. There is a sizeable gap between Highly Skilled and Unskilled employees in the private sector, with the Highly Skilled earning 74.2 lwp more. Of this differences in the mean values of their measures of potential experience make up the smallest component of -0.177 lwp (or – 0.2%) and actually suggests the Highly Skilled should earn less given their relatively lower levels of potential experience; differences in the mean values of their formal education make up 18.36 lwp (25%); differences in the mean values of their other characteristics are a further 4.4 lwp (6%); and the unexplained component is substantial at 51.53 lwp (70%).

The decomposition of the gap between Highly Skilled and Unskilled employees in the public sector is similar. The Highly Skilled earn 61.2 lwp more. Of this, differences in the mean values of their measures of potential experience make up -2.13 lwp (or – 4%) and again suggests the Highly Skilled should earn less given their relative potential experience; differences in the mean values of their formal education make up 15.49 lwp (25%); differences in the mean values of their other characteristics are a further -0.22 lwp (-0.3%); and the unexplained component is even more substantial at 48.32 lwp (79%). The Highly Skilled in both sectors have much higher earnings (as compared to their respective Unskilled counterparts) than would be expected given the levels of their characteristics that are commonly included in an earnings function.

In aggregate, across-sector but within-skill comparisons reveal that public sector employees are more likely to have individual characteristics associated with higher pay. Highly Skilled public sector employees are, however, less likely to work in high paying workplaces. In contrast, Unskilled employees in the public sector are more likely to work in higher paying workplaces.

8. Conclusions

Public sector employees enjoyed an 11.7 log wage point earnings premium over their private sector counterparts in Britain in 2004. Other things equal, higher educated private sector employees receive a higher rate of return for education than do their public servants counterparts. In comparing the higher end of the occupational hierarchy, the public sector rate of return to moving up the occupational hierarchy is clearly higher than for private sector counterparts. Ethnic minority employees are also found to earn considerably more in the public sector and considerably less in the private sector.

[18] Unsurprisingly, given the information in Figure 2, the earnings gap between Highly Skilled public sector and Unskilled private sector employees is 75.2 log per cent, differences in the mean values of their: potential experience make up 2.42 lwp (or 3%); education characteristics make up 15.69 lwp (21%); other characteristics a further 1.59 lwp (2%); and the unexplained component is 55.38 lwp (74%).

Introducing workplace specific fixed effects has little impact on the parameters for the public sector suggesting that workplace characteristics are not strongly related to the individual characteristics that are associated with wages in this sector. With the exception of ethnic employees indicating that ethnic public servants are concentrated in high paying workplaces.

In the private sector there is evidence of high wage workers being concentrated in high wage workplaces and *vice versa* and that this concentration is associated with earnings potential. For example, once the workplace specific effects are allowed for, being a union member is associated with lower earnings. Similarly, the lower parameters on training and higher education levels may indicate some segregation of high wage workers into high productivity workplaces.

Nevertheless, decomposition analysis shows that the majority of the public sector pay premium is associated with public servants being more likely to have individual characteristics associated with higher pay and to their working in higher paid occupations.

Within skill levels but across sectors, the public sector to private sector gap for the Highly Skilled is only 1 log per cent; this is clearly considerably smaller than the public sector to private sector gap for the Unskilled which is 14 log per cent. Within sectors but across skill levels, the earnings gaps are considerable: the Highly Skilled public sector to Unskilled public sector gap is 61.2 log per cent, whilst the Highly Skilled private sector to Unskilled private sector gap is 74.2 log per cent.

In aggregate, across-sector but within-skill comparisons reveal that public sector employees are more likely to have individual characteristics associated with higher pay. Once these (and other observable factors which contribute to the wage gap) are taken into account, we find that for the Highly Skilled group, private sector employees earn a substantial premium over their public sector counterparts. By contrast, for the Unskilled Group, public sector employees earn a considerable premium over their private sector counterparts.

These findings suggest that there is no simple relationship between public sector pay and private sector pay. The High skilled receive a premium in the private sector and, at the opposite end, Unskilled public sector workers receive a premium over their private sector counterparts. The earnings inequality between the Highly Skilled group and the unskilled is however similar in the two sectors. In both, the premium for being in the Highly Skilled group compared to the Unskilled group is considerable at over 60%. In managing public sector pay, these differences between the opposite ends of the occupational hierarchy may need to be borne in mind.

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Table 1. Sample means.

	full sample		public sector		private sector		highly skilled		unskilled	
	mean	s.e.	mean	s.e.	mean	s.e.	mean	s.e.	mean	s.e.
ln(average hourly pay)	2.219	0.01	2.315	0.02	2.198	0.02	2.524	0.01	1.807	0.02
potential experience	24.321	0.24	26.223	0.41	23.907	0.27	23.153	0.30	25.603	0.74
training	2.554	0.07	3.564	0.16	2.334	0.07	3.258	0.10	1.638	0.14
education measures;										
none	0.274	0.01	0.206	0.01	0.290	0.01	0.108	0.01	0.396	0.02
cse25	0.113	0.01	0.088	0.01	0.119	0.01	0.067	0.01	0.156	0.01
cse1	0.218	0.01	0.215	0.01	0.219	0.01	0.200	0.01	0.182	0.02
gceae	0.042	0.00	0.046	0.01	0.042	0.00	0.041	0.05	0.034	0.01
gce2ae	0.071	0.00	0.079	0.01	0.069	0.00	0.089	0.01	0.056	0.01
degree	0.197	0.01	0.241	0.02	0.188	0.01	0.343	0.01	0.064	0.01
postgraduate	0.069	0.01	0.114	0.01	0.059	0.01	0.142	0.01	0.013	0.01
vocational qual.	0.598	0.01	0.670	0.02	0.582	0.01	0.653	0.01	0.426	0.02
child	0.419	0.01	0.452	0.02	0.412	0.01	0.451	0.01	0.375	0.02
married	0.705	0.01	0.754	0.01	0.695	0.01	0.755	0.01	0.619	0.02
disabled	0.123	0.00	0.137	0.01	0.120	0.01	0.112	0.01	0.127	0.01
ethnic	0.055	0.01	0.043	0.01	0.058	0.01	0.042	0.01	0.083	0.02
fixed term	0.024	0.00	0.034	0.01	0.022	0.00	0.029	0.004	0.025	0.01
tenure	5.512	0.08	6.340	0.16	5.331	0.09	5.560	0.11	5.095	0.22
union	0.320	0.01	0.736	0.02	0.229	0.01	0.273	0.01	0.362	0.03
occupation categories;										
managerial	0.160	0.01	0.115	0.01	0.169	0.01		x		
professional	0.115	0.01	0.161	0.02	0.105	0.01		x		
technical	0.133	0.01	0.241	0.02	0.110	0.01		x		
clerical	0.074	0.00	0.123	0.02	0.064	0.00				
craft	0.160	0.01	0.095	0.02	0.174	0.01				
personal	0.022	0.00	0.061	0.01	0.014	0.00				
sales	0.037	0.00	0.006	0.00	0.044	0.01				
operative	0.165	0.01	0.055	0.01	0.189	0.01				
unskilled	0.134	0.01	0.143	0.02	0.132	0.01				x
No. observations	6695		1489		5206			2900		862

Source: WERS 2004.

Table 2. Baseline and FE regressions: public and private sector full-time males.

	Baseline OLS						With workplace specific effects					
ln(hourly pay)	public sector			private sector			public sector			private sector		
	coeff	t-value		coeff	t-value		coeff	t-value		coeff	t-value	
potential experience (years)	0.018	5.14	***	0.027	12.03	***	0.013	3.78	***	0.022	10.29	***
potential experience sqd. (x10³)	-0.217	-3.11	***	-0.419	-9.56	***	-0.167	-2.45	***	-0.341	-8.55	***
training (days previous year)	0.002	0.58		0.006	2.64	***	0.004	1.12		0.000	-0.08	
education none is omitted												
cse25	0.114	3.33	***	0.077	4.02	***	0.062	1.80	*	0.061	3.44	***
cse1	0.139	5.99	***	0.114	5.88	***	0.109	4.01	***	0.074	4.41	***
gceae	0.094	1.19		0.126	3.89	***	0.059	1.12		0.115	4.74	***
gce2ae	0.229	6.91	***	0.256	9.71	***	0.148	4.49	***	0.199	8.50	***
degree	0.288	9.61	***	0.376	14.75	***	0.233	8.03	***	0.243	11.76	***
postgraduate	0.491	9.37	***	0.528	14.46	***	0.429	7.00	***	0.338	11.19	***
vocational qualification	0.031	1.57		0.030	2.19	**	0.048	2.54	***	0.034	3.17	***
child	0.053	2.63	***	0.026	1.99	*	0.058	2.60	***	0.015	1.51	
married	0.061	2.80	***	0.077	5.28	***	0.058	2.54	***	0.069	5.56	***
disabled	-0.032	-1.56		-0.025	-1.48		-0.012	-0.54		-0.012	-0.83	
ethnic	0.093	1.76	*	-0.075	-2.37	***	-0.010	-0.25		-0.059	-2.12	**
fixed term	0.058	1.29		-0.100	-1.60		0.024	0.57		-0.111	-1.99	**
tenure	0.014	4.71	***	0.012	5.69	***	0.014	4.45	***	0.011	6.73	***
union	-0.013	-0.58		0.055	2.86	***	0.008	0.32		-0.047	-2.87	***
clerical is omitted												
managerial	0.303	6.01	***	0.212	6.74	***	0.295	4.94	***	0.246	10.06	***
professional	0.227	3.58	***	0.189	5.58	***	0.202	2.20	***	0.128	5.12	***
technical	0.230	4.50	***	0.095	2.72	***	0.206	3.73	***	0.058	2.31	***
craft	0.083	1.71	*	-0.084	-2.68	***	0.076	1.30		-0.028	-1.17	
personal	-0.083	-1.51		-0.277	-5.38	***	-0.006	-0.08		-0.145	-2.75	***
sales	0.041	0.49		-0.276	-6.27	***	-0.060	-0.68		-0.083	-2.47	***
operative	-0.090	-1.29		-0.223	-6.74	***	-0.209	-2.25	***	-0.157	-6.42	***
unskilled	-0.205	-4.23	***	-0.363	-9.59	***	-0.175	-2.27	***	-0.255	-8.73	***
constant	1.564	29.34	***	1.579	37.15	***	1.654	24.06	***	1.700	47.40	***
No. observations		1489			5206			1489			5206	
R-squared		0.5147			0.5149			0.7427			0.7647	

Table 3. Decomposing the earnings gap: Public and Private sector male full-time employees.

Earnings gap		11.73
(i) Baseline OLS		
Differences in characteristics		8.01 lpp
Potential experience	2.28 lpp	
Education	4.09 lpp	
Other	1.64 lpp	
Occupation		2.42 lpp
Unexplained		1.29 lpp

Source: WERS 2004. In each case the contribution of each group of variables is evaluated using the parameters from the model for the public sector (the higher earnings group). All figures are expressed in log-percentage points.

Table 4. Sub sample means.

	highly skilled				unskilled			
	public sector		private sector		public sector		private sector	
	mean	s.e.	mean	s.e.	mean	s.e.	mean	s.e.
ln(hourly pay)	2.532	0.02	2.522	0.02	1.917	0.03	1.781	0.02
potential experience	25.454	0.48	22.478	0.36	29.332	0.94	24.721	0.88
training	4.506	0.17	2.892	0.11	1.809	0.29	1.597	0.15
education measures;								
none	0.102	0.01	0.110	0.01	0.457	0.03	0.486	0.03
cse25	0.061	0.01	0.069	0.01	0.164	0.03	0.154	0.02
cse1	0.181	0.02	0.205	0.01	0.191	0.03	0.180	0.02
gceae	0.039	0.01	0.041	0.01	0.031	0.01	0.034	0.01
gce2ae	0.076	0.01	0.093	0.01	0.094	0.02	0.047	0.01
degree	0.341	0.03	0.344	0.01	0.040	0.02	0.070	0.01
postgraduate	0.195	0.02	0.127	0.01	0.008	0.01	0.015	0.01
vocational qualification	0.748	0.02	0.625	0.02	0.457	0.04	0.419	0.02
child	0.499	0.02	0.437	0.01	0.401	0.04	0.369	0.02
married	0.799	0.02	0.742	0.01	0.740	0.03	0.591	0.02
disabled	0.126	0.01	0.108	0.01	0.149	0.02	0.122	0.01
ethnic	0.051	0.01	0.039	0.01	0.031	0.01	0.095	0.02
fixed term	0.049	0.01	0.024	0.004	0.008	0.01	0.029	0.01
tenure	6.197	0.22	5.373	0.12	6.662	0.34	4.724	0.23
union	0.722	0.02	0.142	0.01	0.818	0.03	0.254	0.03
No. observations		805		2095		222		640

Source: WERS 2004.

Table 5. Baseline earnings regressions: By skill groups and sector.

	Highly skilled						Unskilled					
	public sector			private sector			public sector			private sector		
log hourly pay												
	coeff	t-value		coeff	t-value		coeff	t-value		coeff	t-value	
potential experience	0.021	3.46	***	0.032	8.19	***	0.021	2.92	***	0.016	2.61	***
potential exp sqd (x1000)	-0.261	-2.03	**	-0.475	-5.79	***	-0.304	-2.01	**	-0.268	-2.49	***
training	-0.004	-1.22		0.007	2.27	**	-0.003	-0.20		0.010	1.81	*
education none is omitted												
cse25	0.146	2.36	***	0.017	0.35		0.070	1.43		0.065	1.36	
cse1	0.142	3.22	***	0.059	1.35		0.124	1.91	*	0.135	3.21	***
ceae	0.035	0.22		0.048	0.84		0.037	0.47		-0.052	-0.78	
ce2ae	0.228	3.98	***	0.322	7.16	***	0.228	3.62	***	0.118	2.37	***
degree	0.294	5.42	***	0.387	9.19	***	0.158	1.70	*	0.145	1.98	**
postgraduate	0.466	8.42	***	0.557	11.77	***	0.125	0.89		-0.231	-0.84	
vocational qualification	-0.009	-0.36		0.011	0.49		0.058	1.43		0.053	1.66	*
child 0-18	0.056	1.96	**	0.012	0.55		0.003	0.05		0.010	0.31	
married	0.045	1.69	*	0.099	3.74	***	0.060	1.05		0.075	2.28	**
disabled	-0.063	-1.91	*	-0.056	-1.69	*	0.054	1.47		-0.046	-1.12	
ethnic	0.083	1.23		-0.049	-0.93		-0.019	-0.27		0.015	0.23	
fixed contract	0.098	2.06	**	-0.209	-1.79	*	-0.242	-2.31	***	-0.164	-1.64	
tenure	0.010	2.33	***	0.009	2.97	***	0.017	2.44	***	0.023	4.60	***
union	0.001	0.02		-0.053	-1.60		-0.056	-0.86		0.135	2.93	***
constant	1.848	23.46	***	1.724	32.15	*	1.399	13.28	***	1.339	17.37	***
No. observations		805			2095			222			640	
Pseudo R2		0.2601			0.2937			0.1411			0.2533	

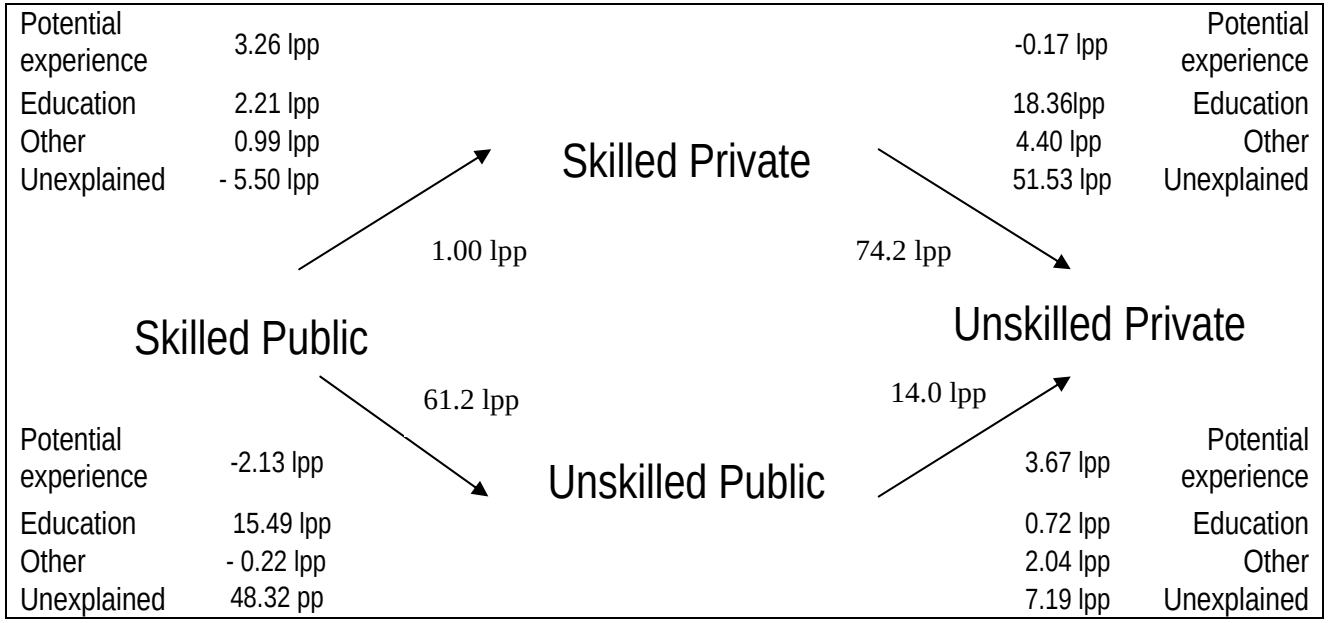
Source: WERS 2004. *** Significant at a confidence level of 99% and/or above, ** at 95% level, and * at 90%.

Table 6. Fixed effects earnings regressions: By skill groups and sector.

	Highly Skilled						Unskilled					
	public sector			private sector			public sector			private sector		
log hourly pay												
	coeff	t-value		coeff	t-value		coeff	t-value		coeff	t-value	
potential experience	0.019	3.08	***	0.031	7.54	***	0.016	2.34	***	0.013	1.64	
potential exp sqd (x1000)	-0.278	-2.37	***	-0.467	-5.64	***	-0.209	-1.73	*	-0.220	-1.67	*
training	0.001	0.19		0.004	1.15		-0.0004	-0.05		0.003	0.59	
education none is omitted												
cse25	0.045	0.80		-0.060	-0.99		-0.043	-1.04		-0.010	-0.20	
cse1	0.127	3.06	***	-0.019	-0.42		0.088	1.65	*	0.009	0.19	
ceae	0.023	0.24		0.018	0.34		-0.053	-0.69		-0.022	-0.28	
ce2ae	0.129	2.38	***	0.158	3.22	***	0.144	2.64	***	0.112	2.14	**
degree	0.232	5.19	***	0.182	3.98	***	0.082	1.15		0.080	1.58	
postgraduate	0.356	7.45	***	0.312	5.84	***	-0.028	-0.15		-0.078	-0.74	
vocational qualification	0.035	1.42		0.020	1.03		0.049	0.91		0.093	2.45	***
child 0-18	0.034	1.00		0.032	1.67	*	0.066	1.08		-0.046	-1.43	
married	0.079	2.46	***	0.083	3.12	***	0.078	1.61		0.037	1.01	
disabled	-0.014	-0.35		0.003	0.13		0.019	0.54		-0.070	-1.99	**
ethnic	-0.022	-0.36		-0.103	-2.62	***	-0.119	-1.16		-0.016	-0.17	
fixed contract	0.018	0.39		-0.099	-0.89		-0.263	-3.18	***	0.102	1.52	
tenure	0.016	3.38	***	0.012	3.53	***	0.012	1.99	**	0.017	3.41	***
union	0.079	2.31	**	-0.101	-3.19	***	-0.005	-0.20		-0.087	-1.16	
constant	1.809	24.41	***	1.882	32.32	***	1.457	10.45	***	1.526	16.03	***
No. observations		805			2095			222			640	
Pseudo R2		0.7135			0.7034			0.6236			0.7718	

Source: WERS 2004. *** Significant at a confidence level of 99% and/or above, ** at 95% level, and * at 90%.

Figure 2: Decomposition of the Earnings Gaps - Comparing skilled and unskilled full-time male employees in the Public and Private Sectors.



Notes:
Source: WERS 2004. Each total bilateral earnings gap is presented next to an arrow indicating the direction of the comparison. In each case the contribution of each group of variables is evaluated using the parameters from the model for the higher earnings group. All figures are expressed in log-percentage points.

Appendix Table A1. Variable definitions.

Variable name	Variable definition
hourly pay	Average pay [midpoints of 14 bands] divided by usual hours worked (including overtime)
log hourly pay	The natural log of average hourly pay
potential experience (years)	Age minus (approximate years of schooling plus 5), measured in years.
training (days in previous year)	Days of training in the previous twelve months
education measures:	
none	Does not have any of the academic qualifications listed
cse25	Highest level of education is GCSE grades D-G; CSE grades 2-5 SCE; O grades D-; SCE Standard grades 4-7.
cse1	Highest level of education is GCSE grades A-C; GCE O-level passes; CSE grade 1 SCE; O grades A-C; or SCE Standard 1-3
gceae	Highest level of education is GCE A-level grades A-E; 1-2 SCE; Higher grades A-C, As levels
gce2ae	Highest level of education is 2 or more GCE; A-levels grades A-E; 3 or more SCE; or Higher grades A-C
degree	Highest level of education is a first degree, eg BSc, BA, HND, HNC Ma at first degree level
postgraduate	Highest level of education is a higher degree, eg MSc, MA, PGCE, PhD
child	Has a dependent child aged below 18
married	Married or living with a partner
disabled	Has a long term (>1 year) illness/disability
ethnic	Employee considers they are white and black Caribbean; white and black African; white and Asian; any other mixed background; Indian; Pakistani; Bangladeshi; any other Asian background; Caribbean; African; any other black background; Chinese; or any other ethnic group.
fixed term	Employed on a fixed term contract
hours	Usual hours worked per week (includes over time)
tenure	Years at this workplace
union	Employee is a union member

Variable name	Variable definition
occupation categories;	
managerial	Managerial
professional	Professional
technical	Technical
clerical	Clerical
craft	Craft service
personal	Personal service
sales	Sales and customer services
operative	Operative and assembly workers
unskilled	Unskilled
highly skilled occupations	Managerial, professional or technical occupation.
public sector	The formal status of this establishment (or the organisation) is described as: government-owned limited company / nationalised industry/T); public service agency; other non-trading public corporation; quasi autonomous national government organisation (QUANGO); local/central government (inc. NHS and Local Education Authorities).
private sector	The formal status of this establishment (or the organisation) is described as: public limited company (plc); private limited company; company limited by guarantee; partnership (inc. limited liability partnership/self-prop); trust / charity; body established by royal charter; co-operative / mutual / friendly society.

Source: WERS 2004.